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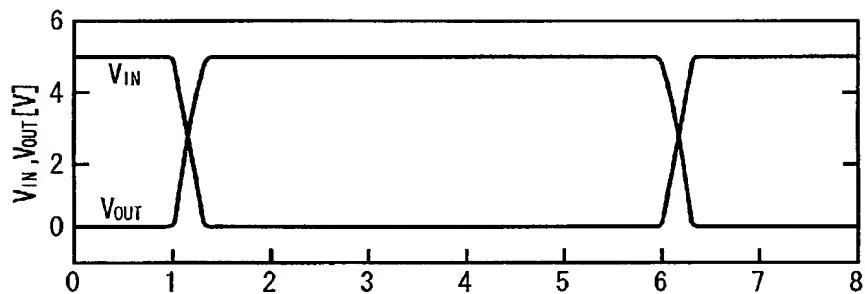


FIG. 1A

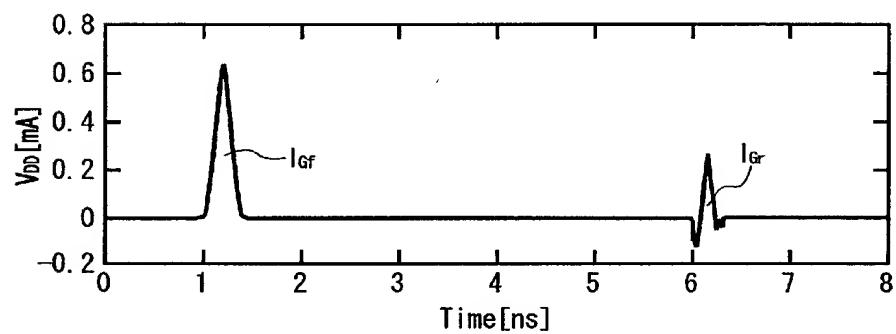


FIG. 1B

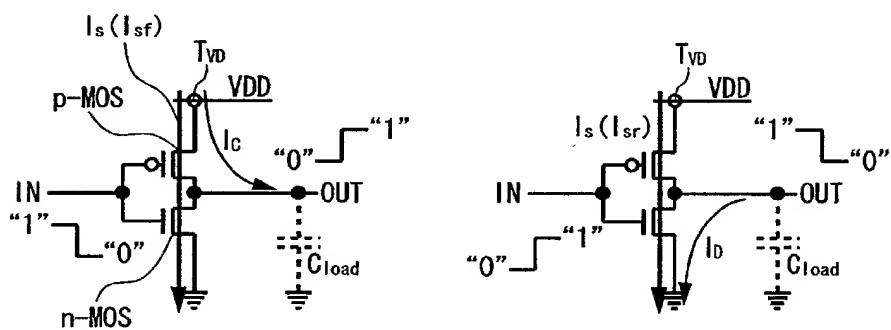


FIG. 1C

FIG. 1D

FIG. 2A

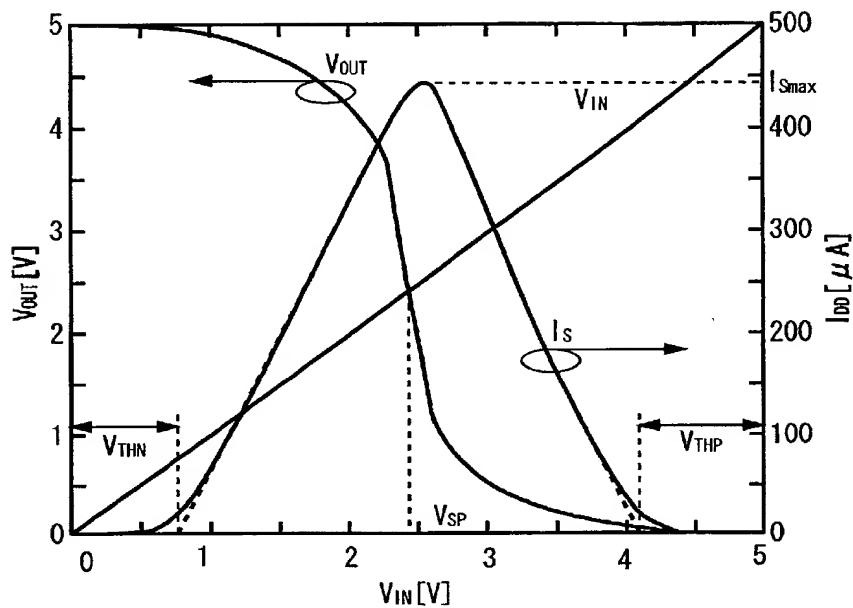
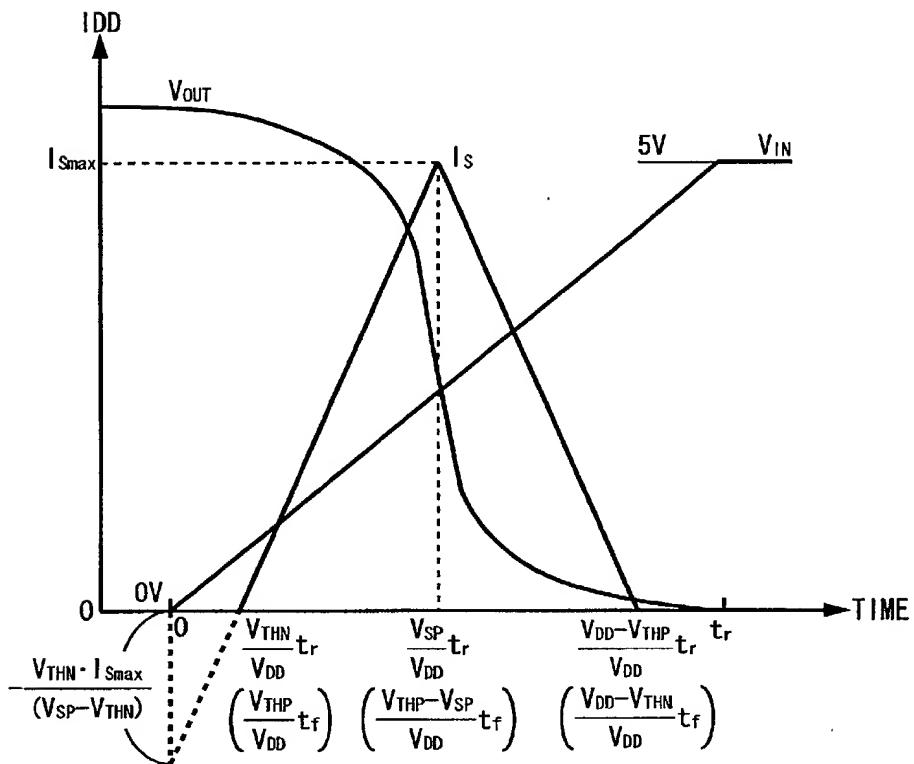


FIG. 2B



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FIG. 3A

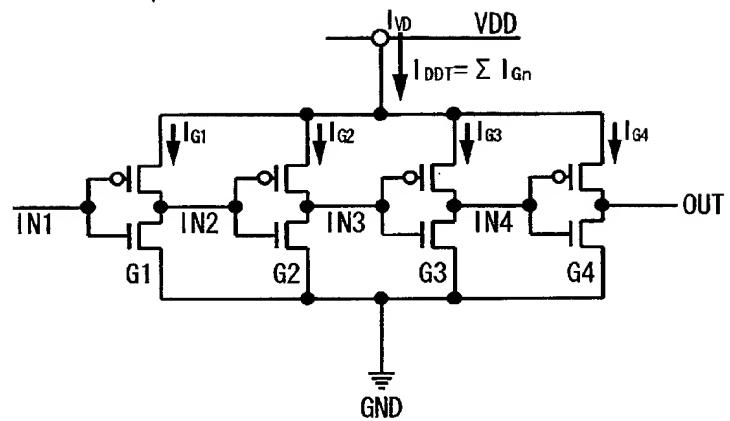


FIG. 3B

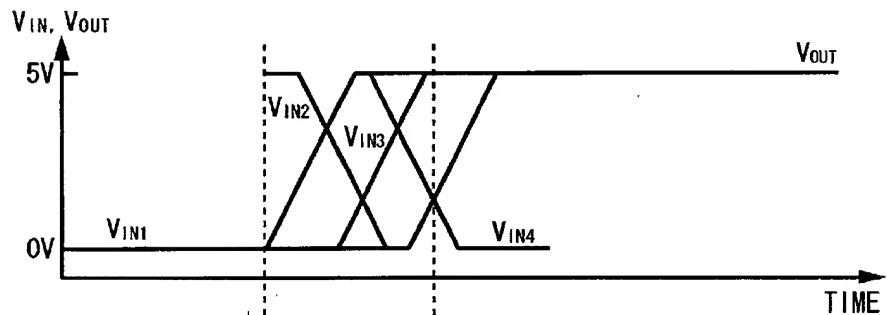
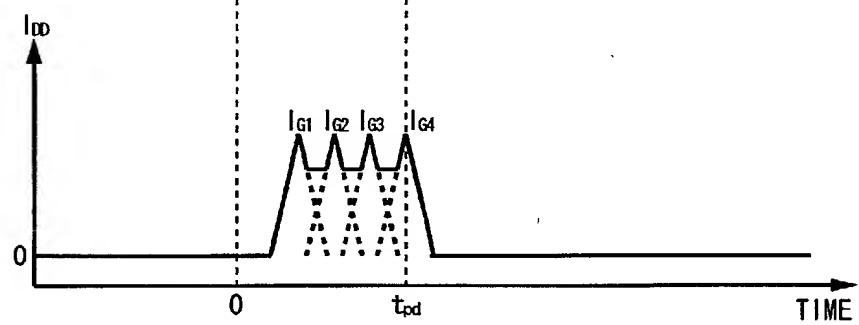


FIG. 3C



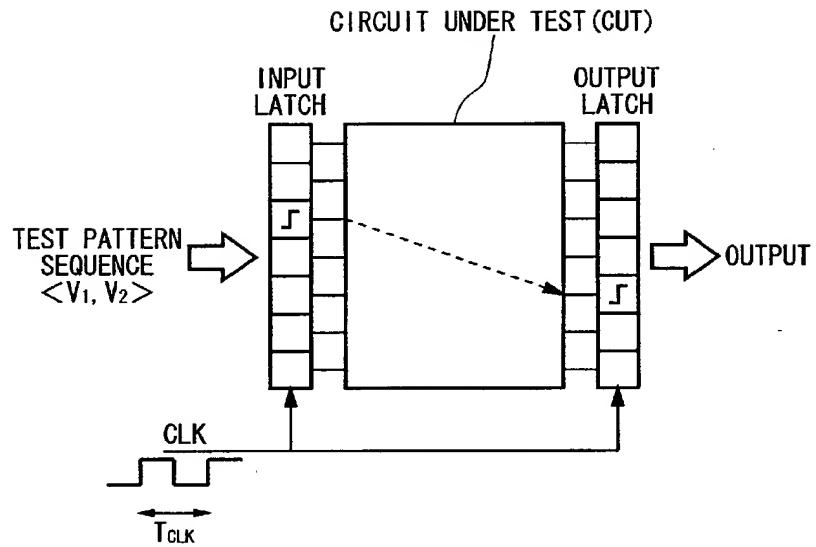


FIG. 4A

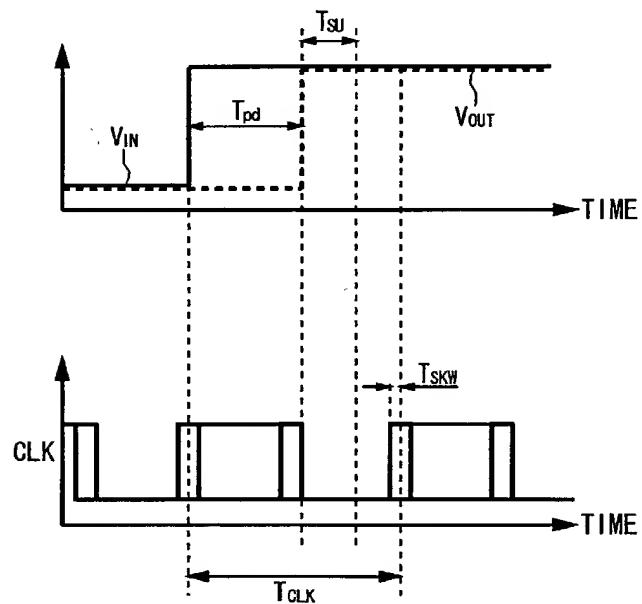
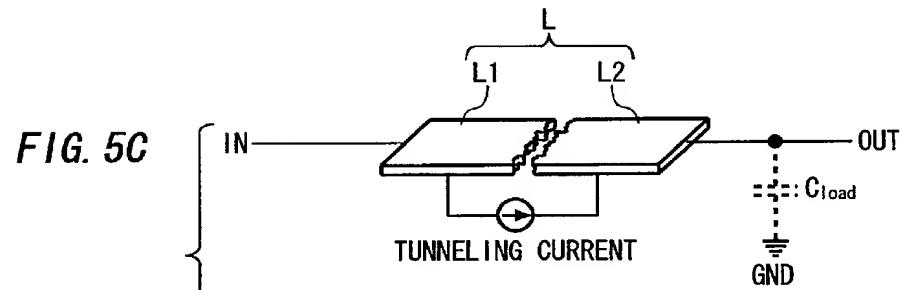
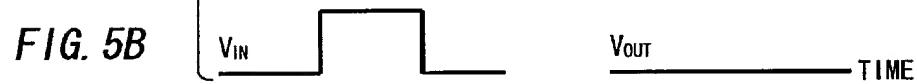
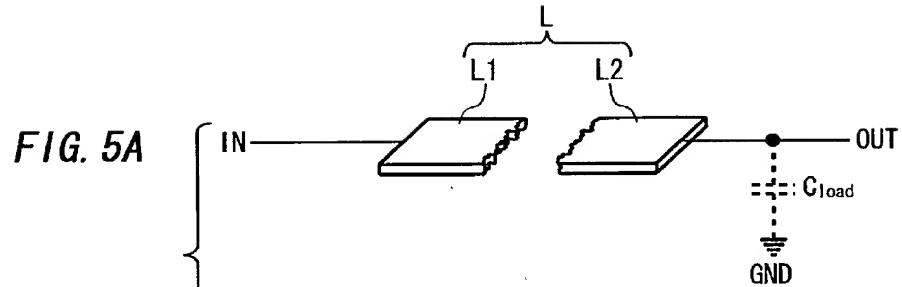


FIG. 4B



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FIG. 6A

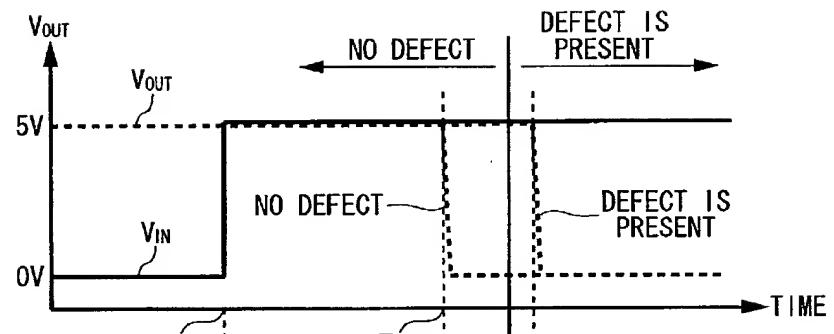
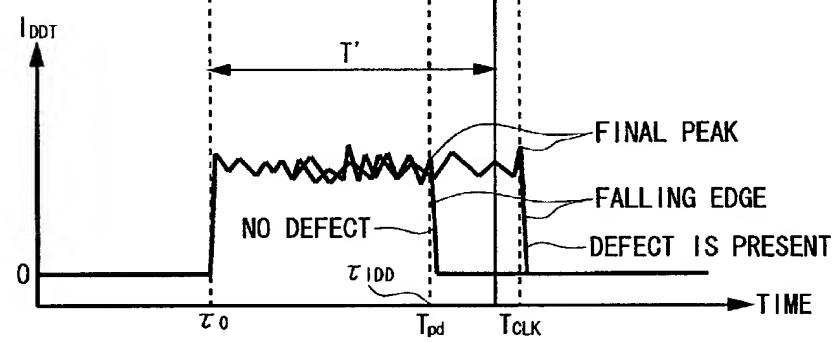


FIG. 6B



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FIG. 7A

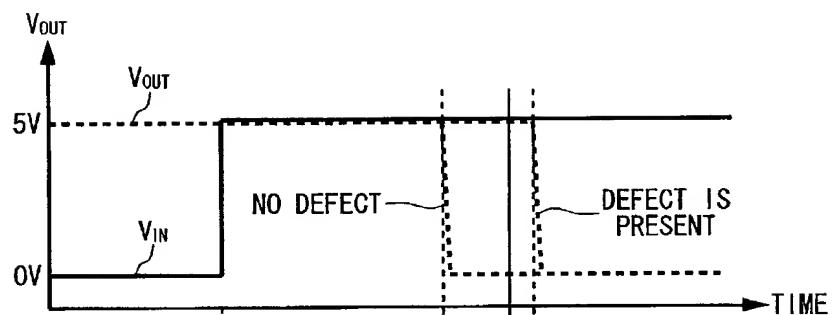
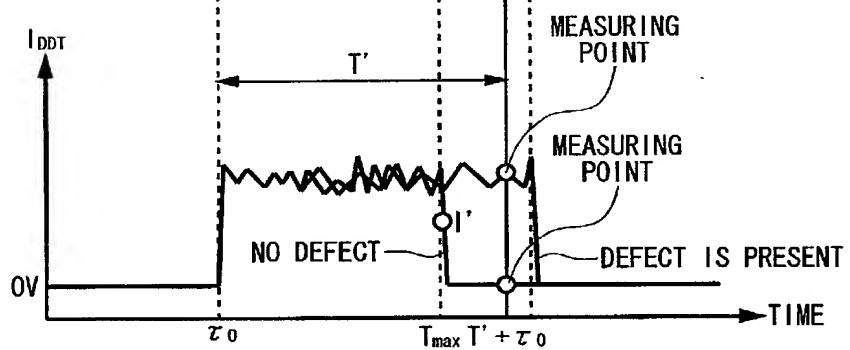


FIG. 7B

NO DEFECT: $i_{ddt}(T' + \tau_0) \leq I'$ DEFECT IS PRESENT: $i_{ddt}(T' + \tau_0) > I'$

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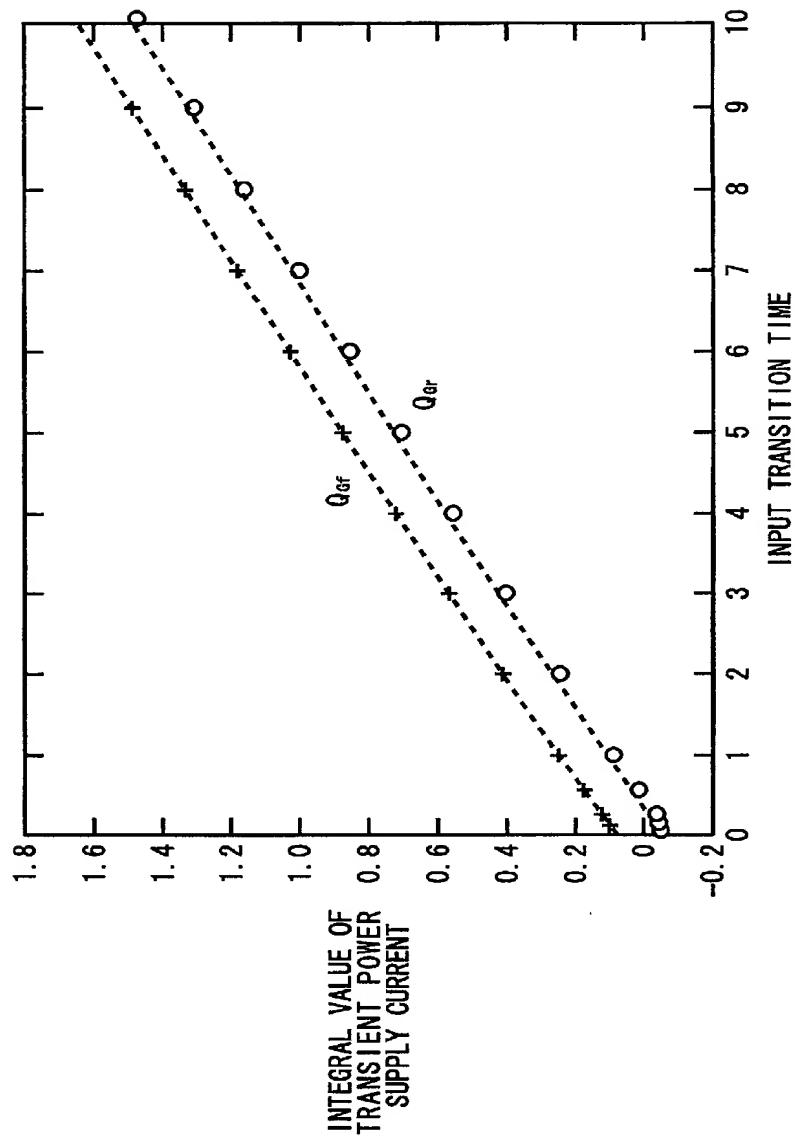


FIG. 8

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FIG. 9A

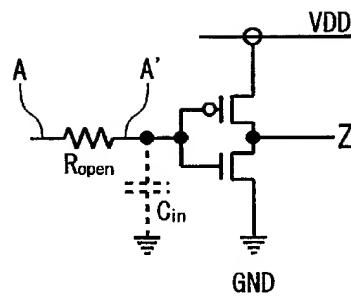


FIG. 9B

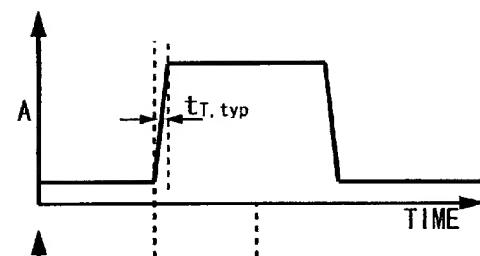
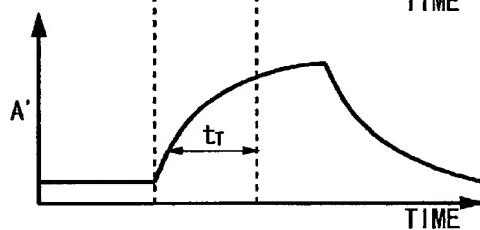


FIG. 9C



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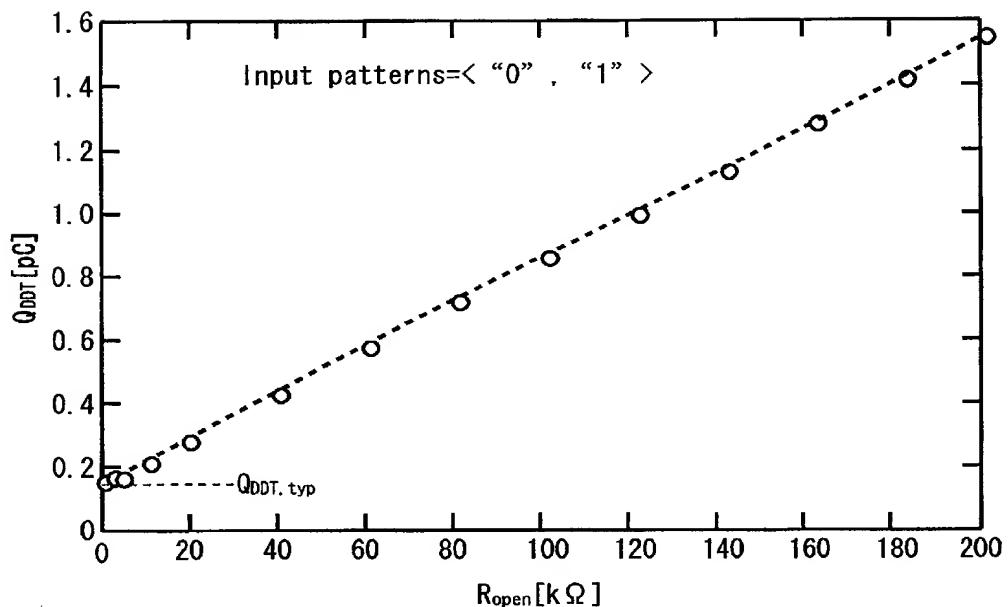


FIG. 10

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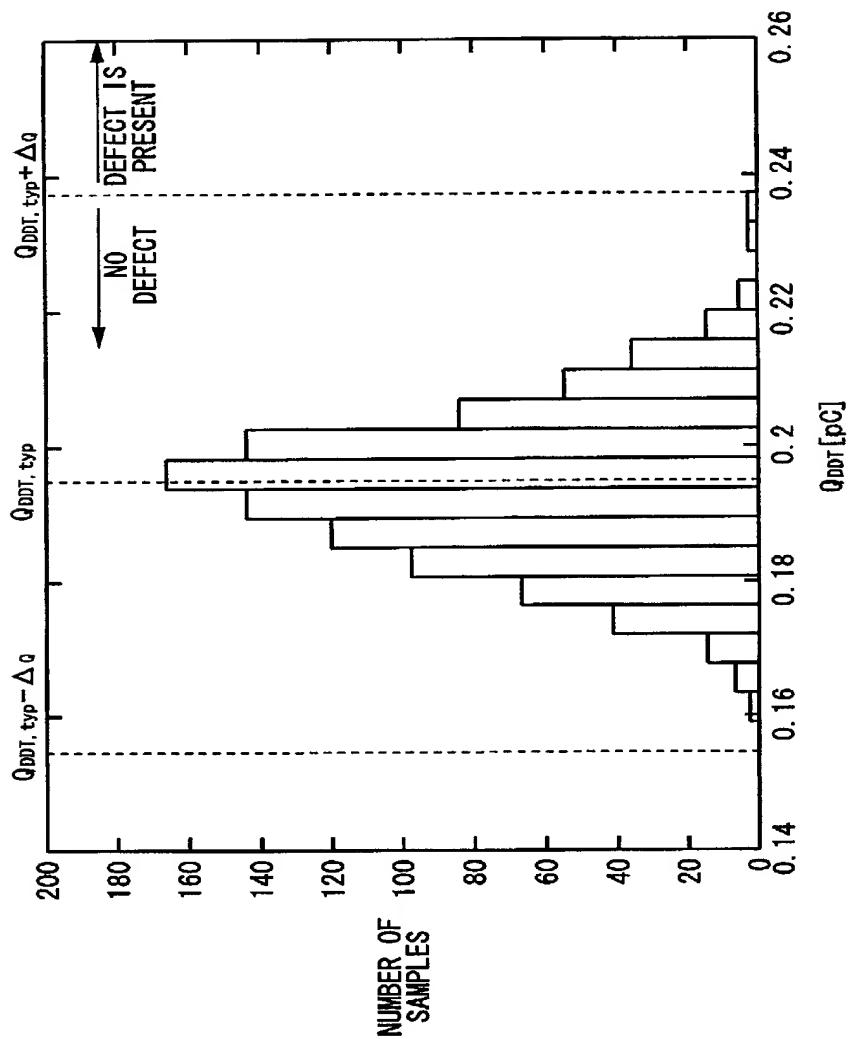


FIG. 11

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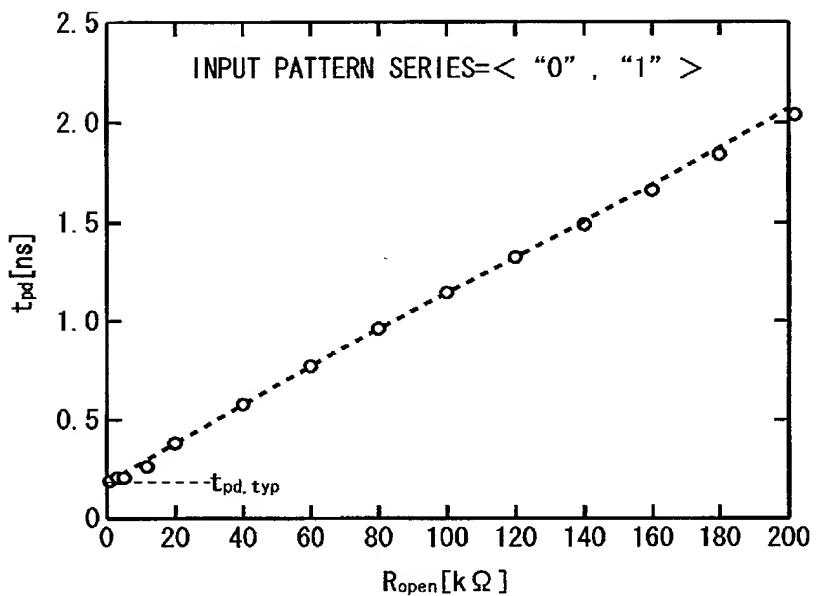


FIG. 12

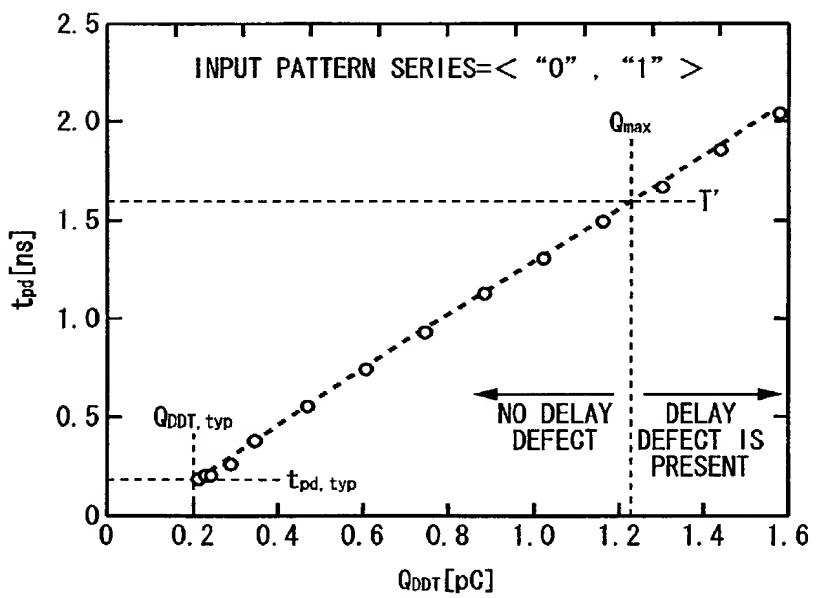


FIG. 13

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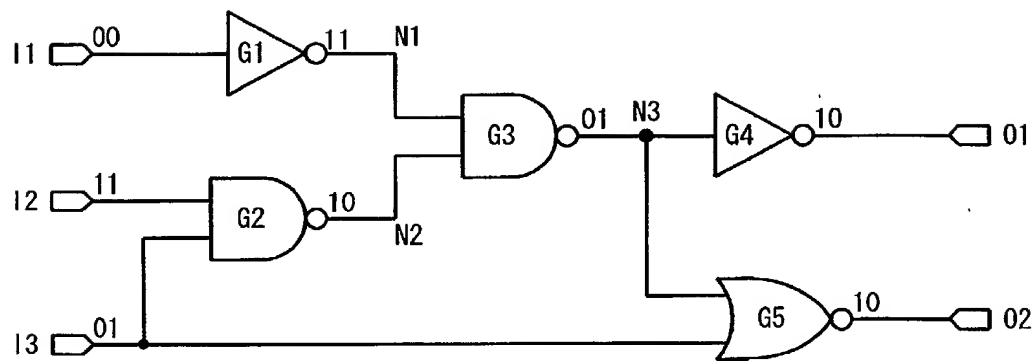


FIG. 14

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TEST PATTERN SEQUENCE ID NO.	INPUT TERMINAL			INTERNAL NODE			OUTPUT TERMINAL		DETECTABLE FAULTY GATE
	I1	I2	I3	N1	N2	N3	O1	O2	
T1	0	0	R	1	1	0	1	F	G5
T2	0	1	R	1	F	R	F	F	G2, G3, G4, G5
T3	1	0	R	0	1	1	0	0	—
T4	1	1	R	0	F	1	0	0	G2
T5	0	R	0	1	1	0	1	1	—
T6	0	R	1	1	F	R	F	0	G2, G3, G4
T7	1	R	0	0	1	1	0	0	—
T8	1	R	1	0	F	1	0	0	G2
T9	R	0	0	F	1	R	F	F	G1, G3, G4, G5
T10	R	0	1	F	1	R	F	0	G1, G3, G4
T11	R	1	0	F	1	R	F	F	G1, G3, G4, G5
T12	R	1	1	F	0	1	0	0	G1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

FIG. 15

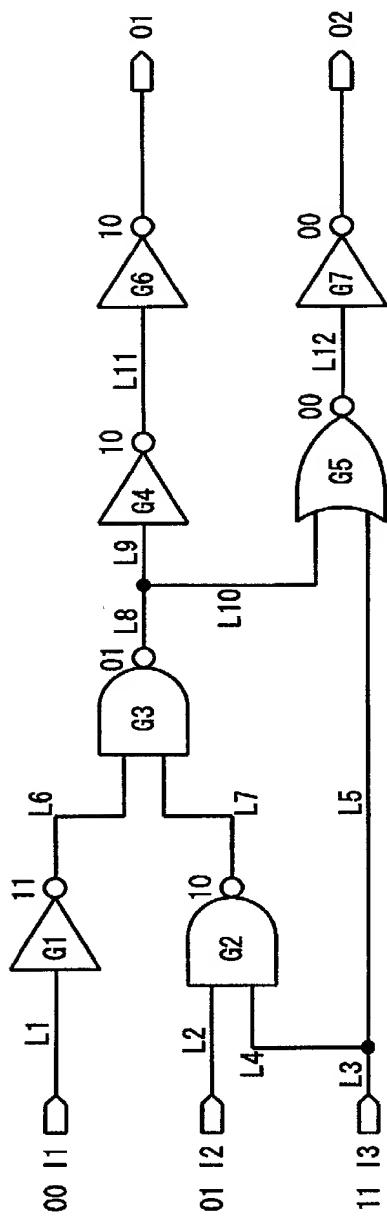


FIG. 16

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TEST PATTERN SEQUENCE ID NO.	INPUT TERMINAL	INTERNAL SIGNAL LINE								OUTPUT TERMINAL	DETECTABLE DEFECTIVE INTERNAL SIGNAL LINE
T1	11 12 13	1	2	3	4	5	6	7	8	9	10 11 12 01 02
T2	0 0 R	0	0 R	R	R	1	1	1	1	F	L3, L5, L12
T3	0 1 R	0	1 R	R	R	1	F	F	F	F	L3, L4, L5, L7, L8, L9, L10, L11, L12
T4	1 1 R	1	1 R	R	R	0	1	0	0	0	—
T5	0 R 0	0	R	0	0	0	1	1	1	0	—
T6	0 R 1	0	R	1	1	1	F	F	F	0	L2, L7, L8, L9, L11
T7	1 R 0	1	R	0	0	0	1	0	0	0	—
T8	1 R 1	1	R	1	1	0	F	0	0	0	L2
T9	R 0 0	R	0	0	0	F	1	F	F	F	L1, L6, L8, L9, L10, L11, L12
T10	R 0 1	R	0	1	1	F	1	F	F	F	—
T11	R 1 0	R	1	0	0	F	1	F	F	F	L1, L6, L8, L9, L10, L11, L12
T12	R 1 1	R	1	1	1	F	0	0	0	0	L1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

FIG. 17

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TEST PATTERN SEQUENCE ID NO.	INPUT SIGNAL			INTERNAL NODE			OUTPUT TERMINAL		DETECTABLE FAULTY PATH
	I1	I2	I3	N1	N2	N3	O1	O2	
T1	0	0	R	1	1	0	1	F	<I3, O2>
T2	0	1	R	1	F	R	F	F	<I3, N2, N3, O1> <I3, N2, N3, O2>
T3	1	0	R	0	1	1	0	0	—
T4	0	1	R	0	F	1	0	0	—
T5	0	R	0	1	1	0	1	1	—
T6	0	R	1	1	F	R	F	0	<I2, N2, N3, O1>
T7	1	R	0	0	1	1	0	0	—
T8	1	R	1	0	F	1	0	0	—
T9	R	0	0	F	1	R	F	F	<I1, N1, N3, O1> <I1, N1, N3, O2>
T10	R	0	1	F	1	R	F	0	<I1, N1, N3, O1>
T11	R	1	0	F	1	R	F	F	<I1, N1, N3, O1> <I1, N1, N3, O2>
T12	R	1	1	F	0	1	0	0	—
:	:	:	:	:	:	:	:	:	:

FIG. 18

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TEST PATTERN SEQUENCE ID NO.	INPUT TERMINAL	INTERNAL SIGNAL LINE	OUTPUT TERMINAL	DETECTABLE FAULTY PATH
T1	1 1 1 2 1 3	1 2 3 4 5 6 7 8 9 10 11 12	1 F	<13, L3, L5, L12, 02>
T2	0 0 R 0 0 R R 1 1 1 1 F F F F	F F F F	F F	<13, L3, L5, L12, 02> <13, L3, L4, L7, L8, L9, L11, 01> <13, L3, L4, L7, L8, L10, L12, 01>
T3	1 0 R 1 0 R R R 0 1 0 0 0 0 0 0	0 0 0 0 0 0	0 0	—
T4	1 1 R 1 1 R R R 0 F 0 0 0 0 0 0	0 0 0 0 0 0	0 0	—
T5	0 R 0 0 R 0 0 0 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1	1 1	—
T6	0 R 1 0 R 1 1 1 F F F F	F F F F	0	<12, L2, L7, L8, L9, L11, 01>
T7	1 R 0 1 R 0 0 0 1 0 0 0 0 0 0	0 0 0 0 0 0	0 0	—
T8	1 R 1 1 R 1 1 0 F 0 0 0 0 0 0	0 0 0 0 0 0	0 0	—
T9	R 0 0 R 0 0 0 F 1 F F F F	F F F F	F F	<11, L1, L6, L8, L9, L11, 01> <11, L1, L6, L8, L10, L12, 02>
T10	R 0 1 R 0 1 1 F 1 F F F F	F F F F	0 0	<11, L1, L6, L8, L9, L11, 01>
T11	R 1 0 R 1 0 0 0 F 1 F F F F	F F F F	0 0	<11, L1, L6, L8, L9, L11, 01> <11, L1, L6, L8, L10, L12, 02>
T12	R 1 1 R 1 1 1 F 0 0 0 0 0 0	0 0 0 0 0 0	0 0	—
:	:	:	:	:

FIG. 19

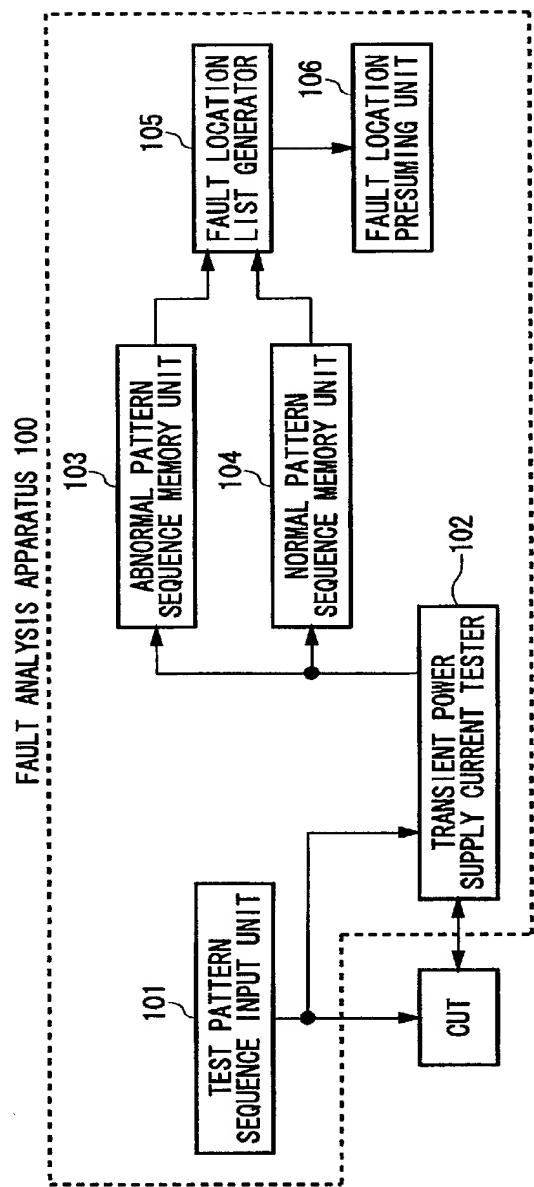


FIG. 20

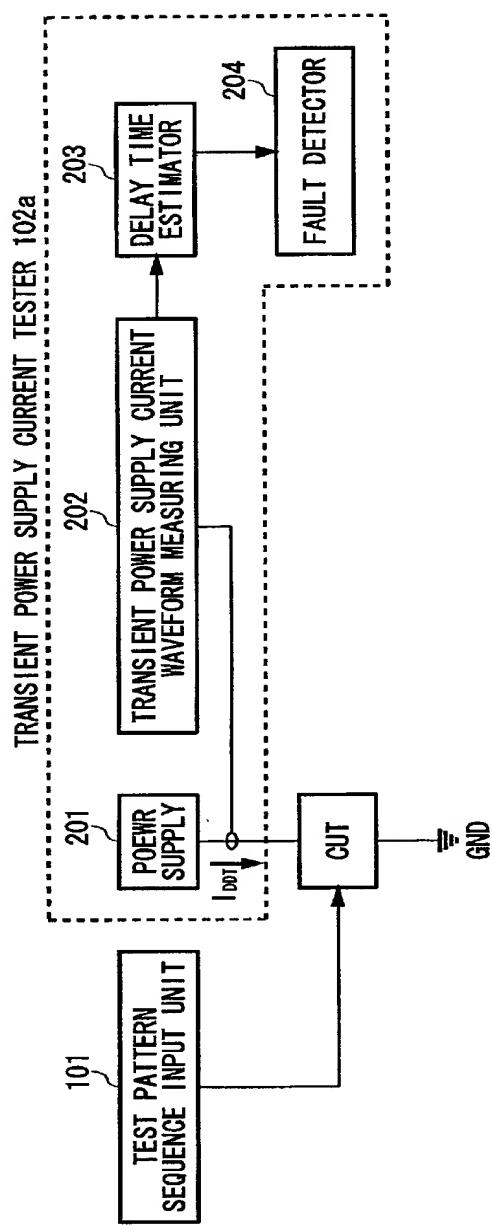


FIG. 21

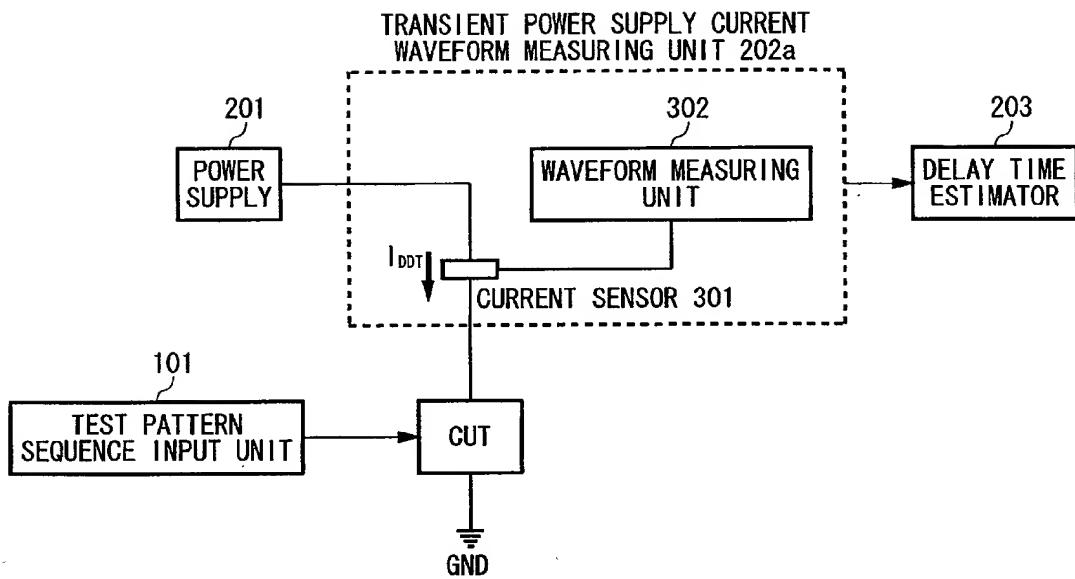


FIG. 22

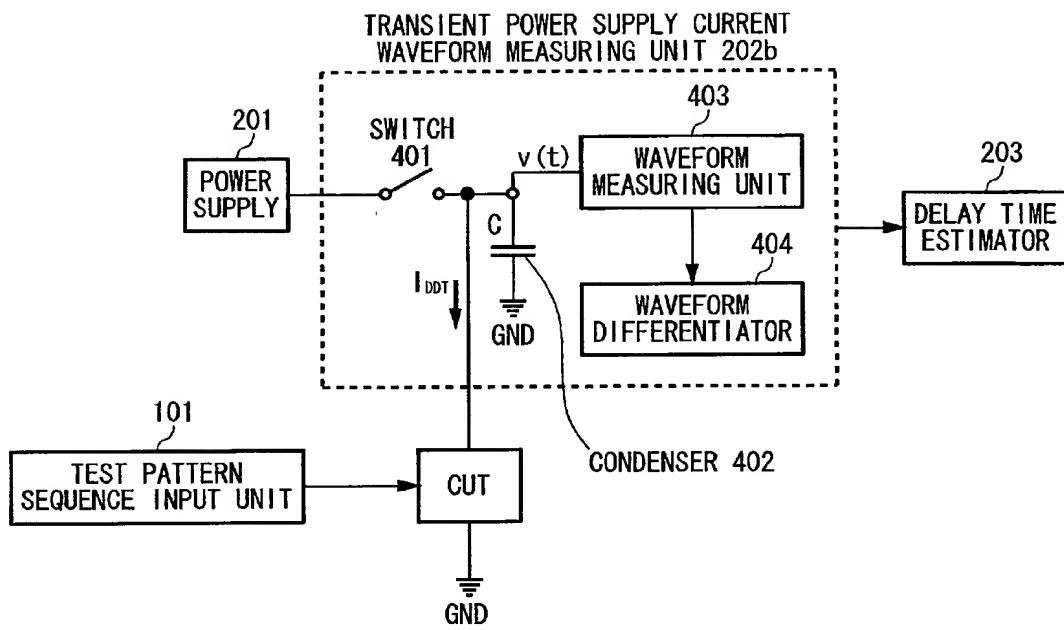


FIG. 23

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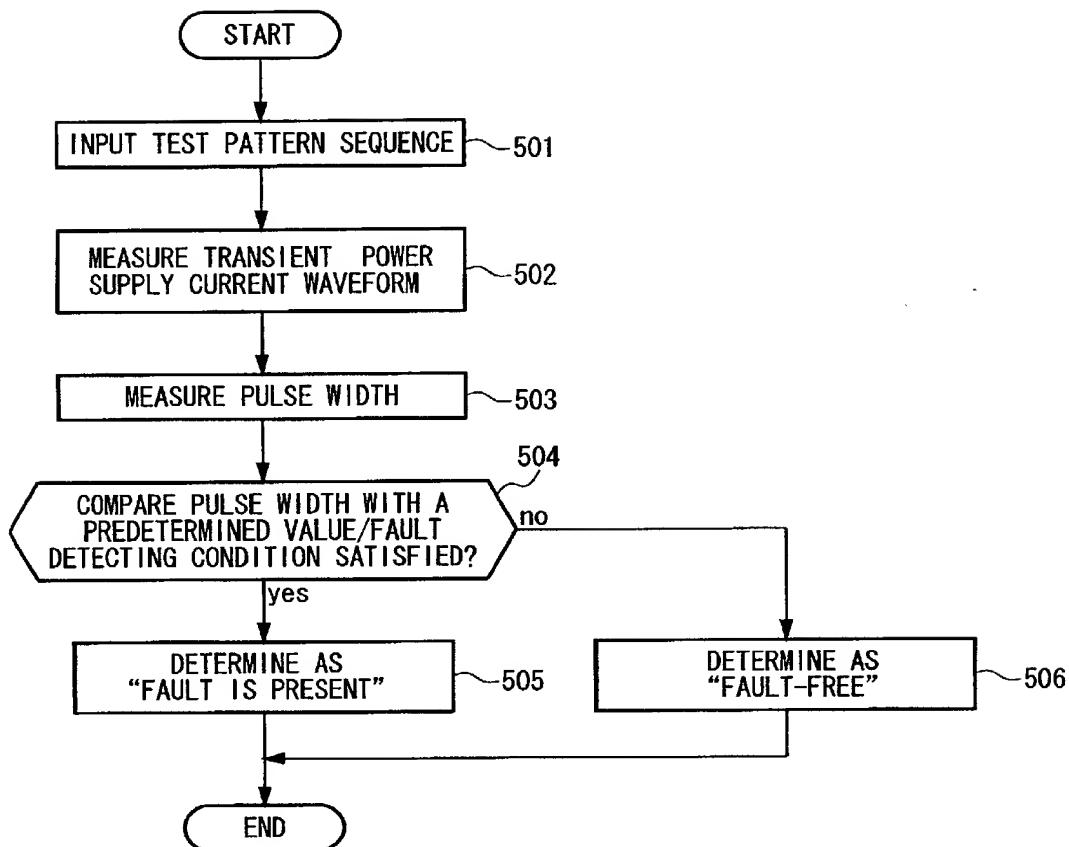


FIG. 24

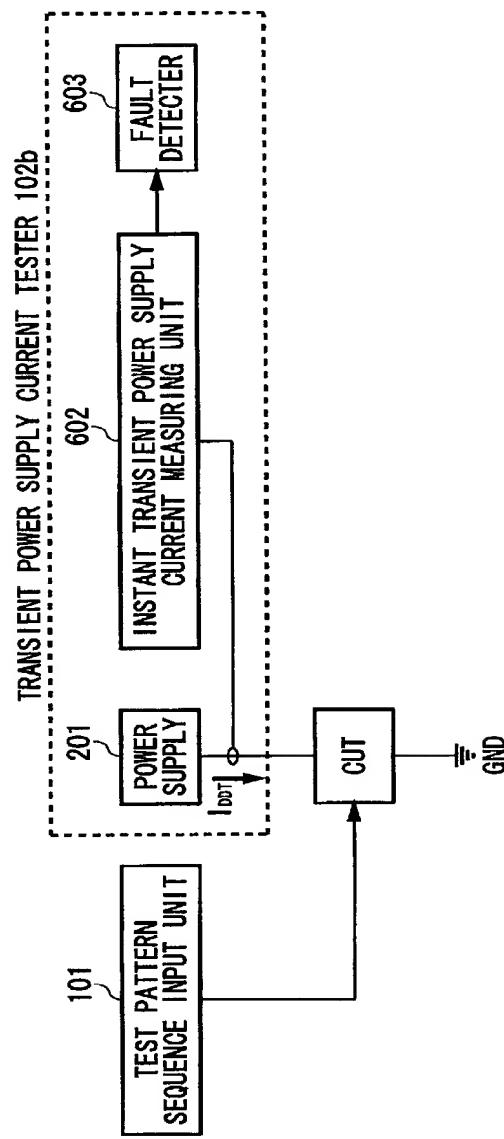


FIG. 25

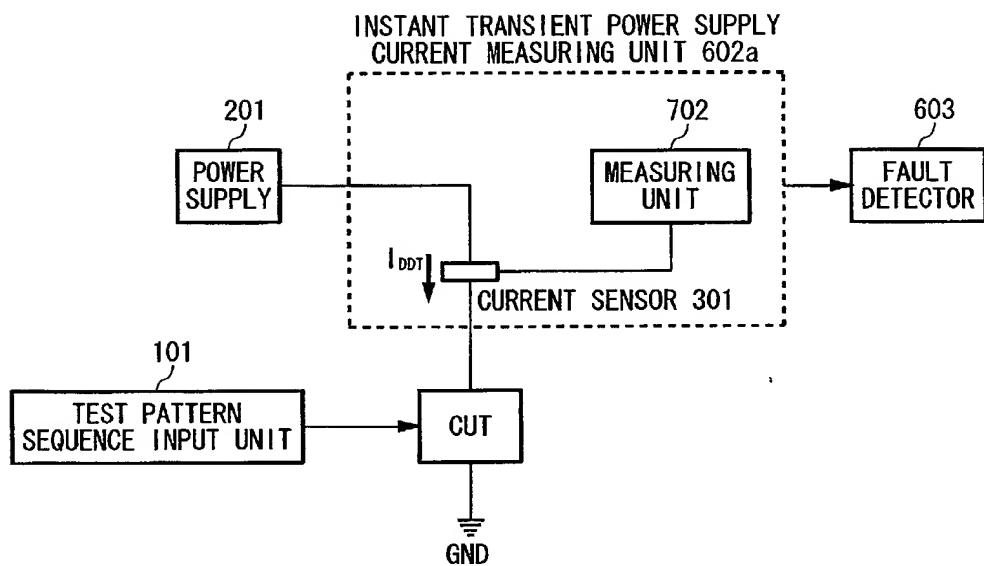


FIG. 26

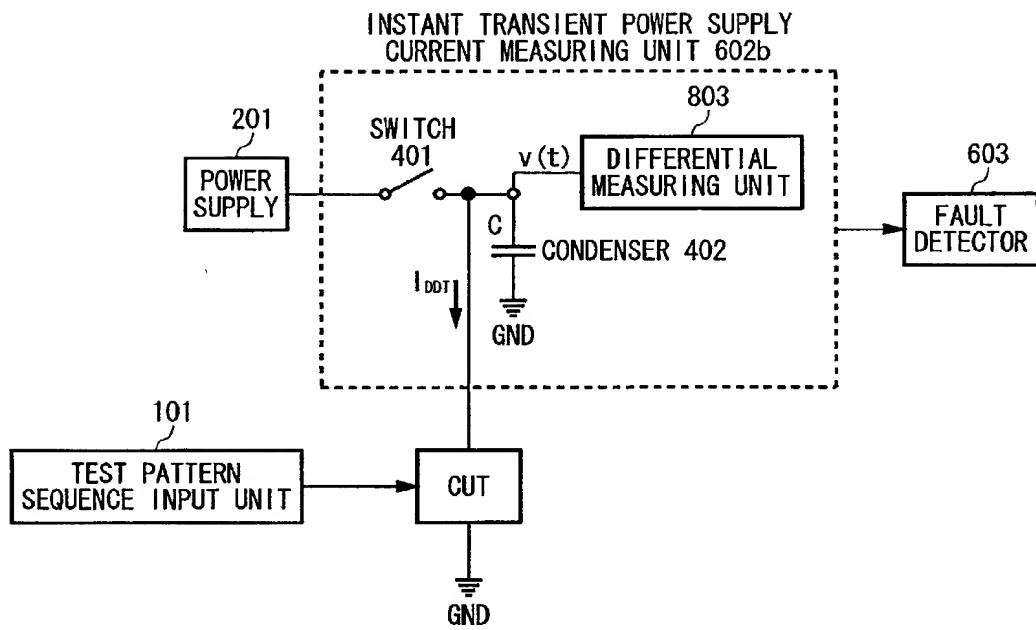


FIG. 27

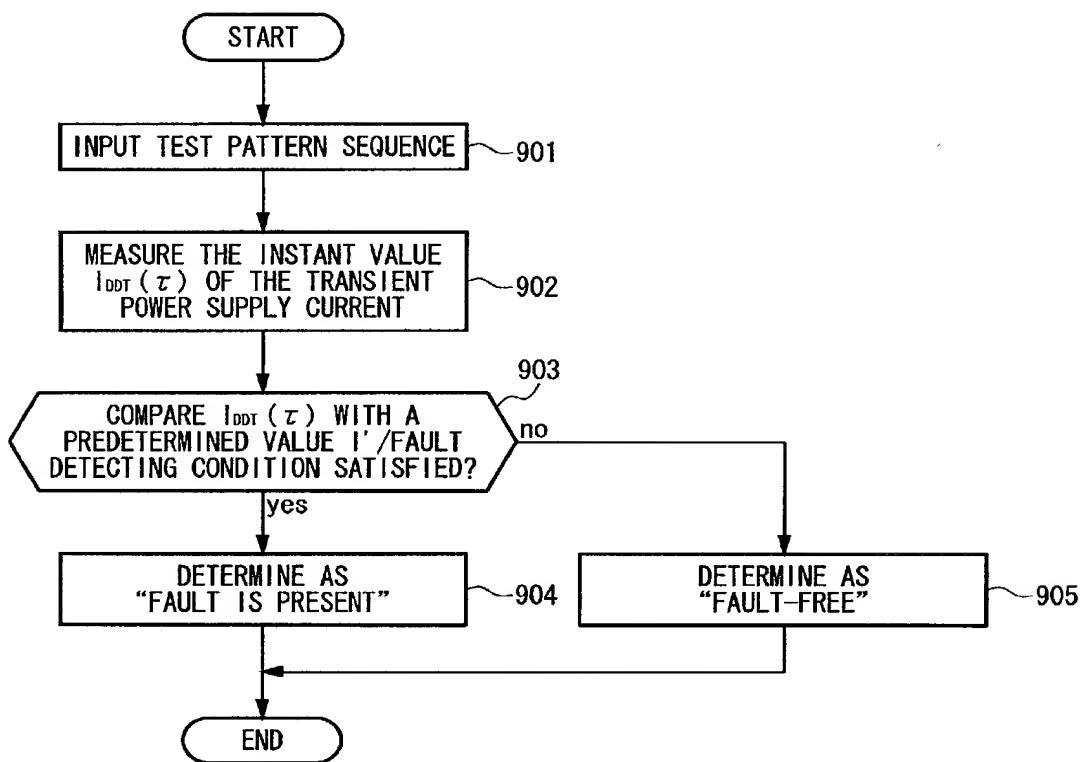


FIG. 28

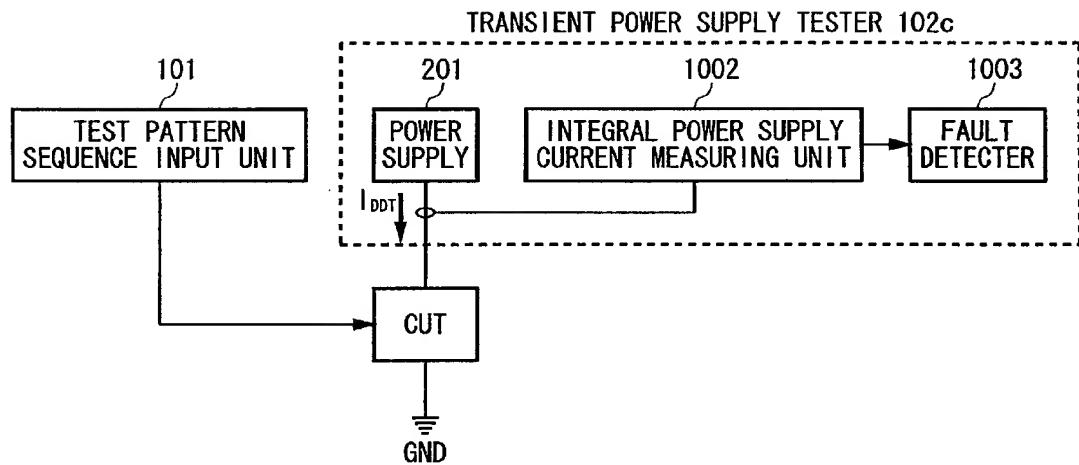


FIG. 29

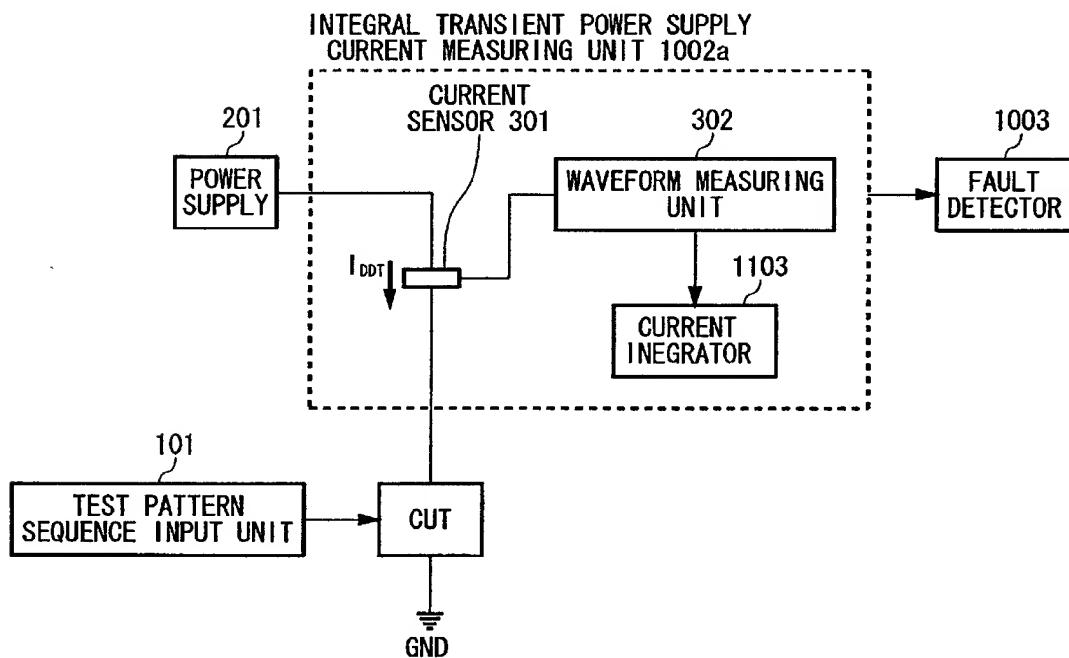


FIG. 30

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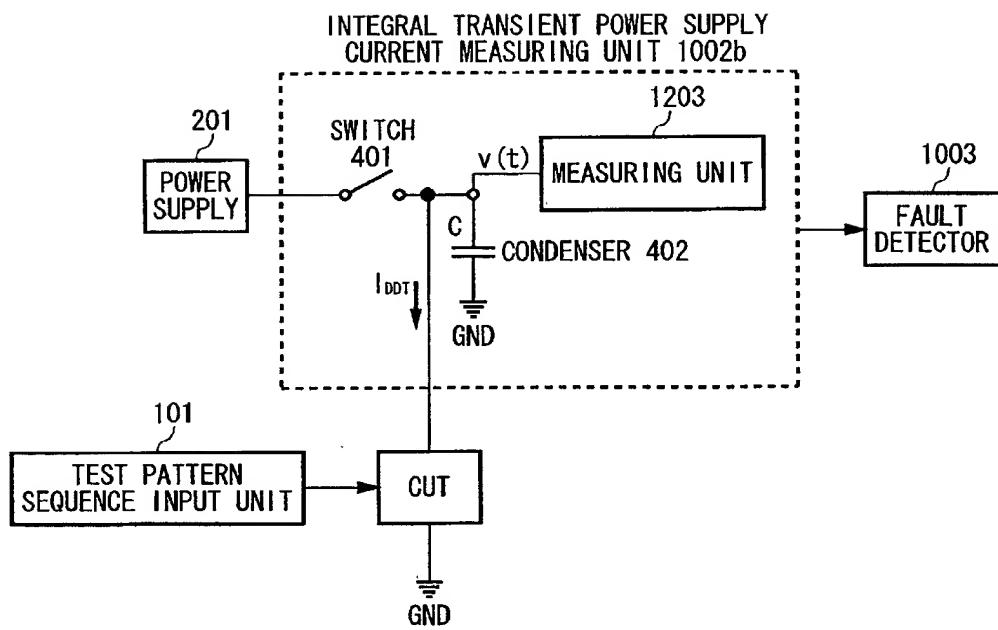


FIG. 31

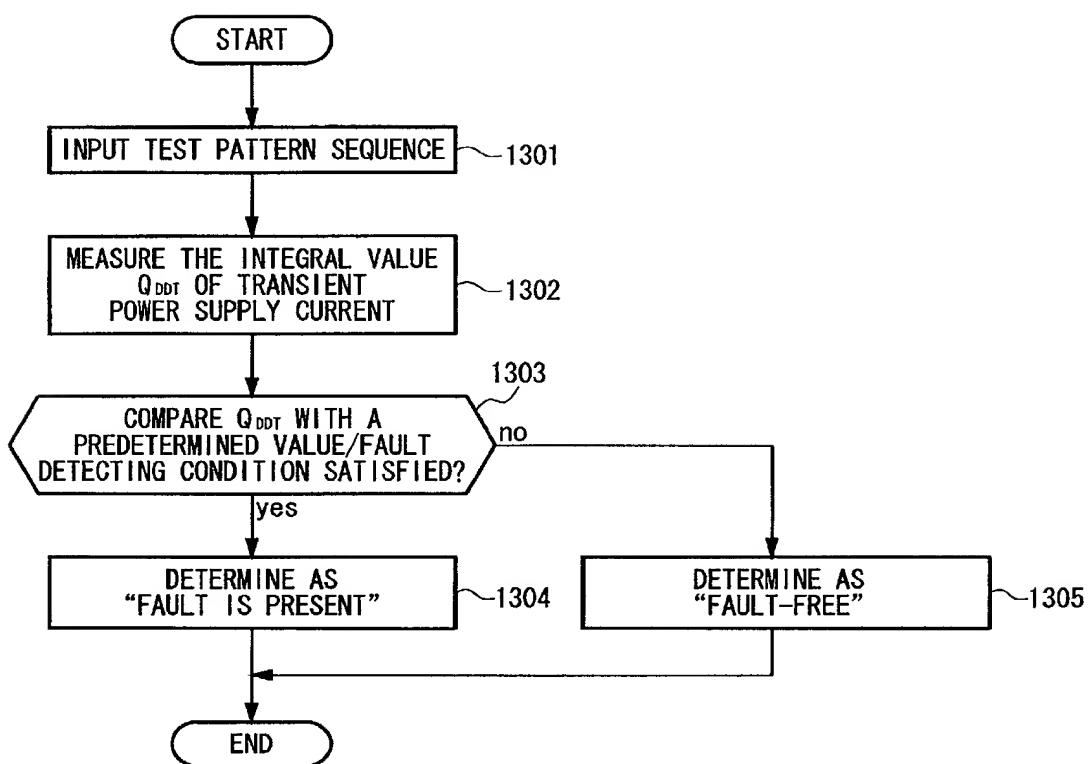


FIG. 32

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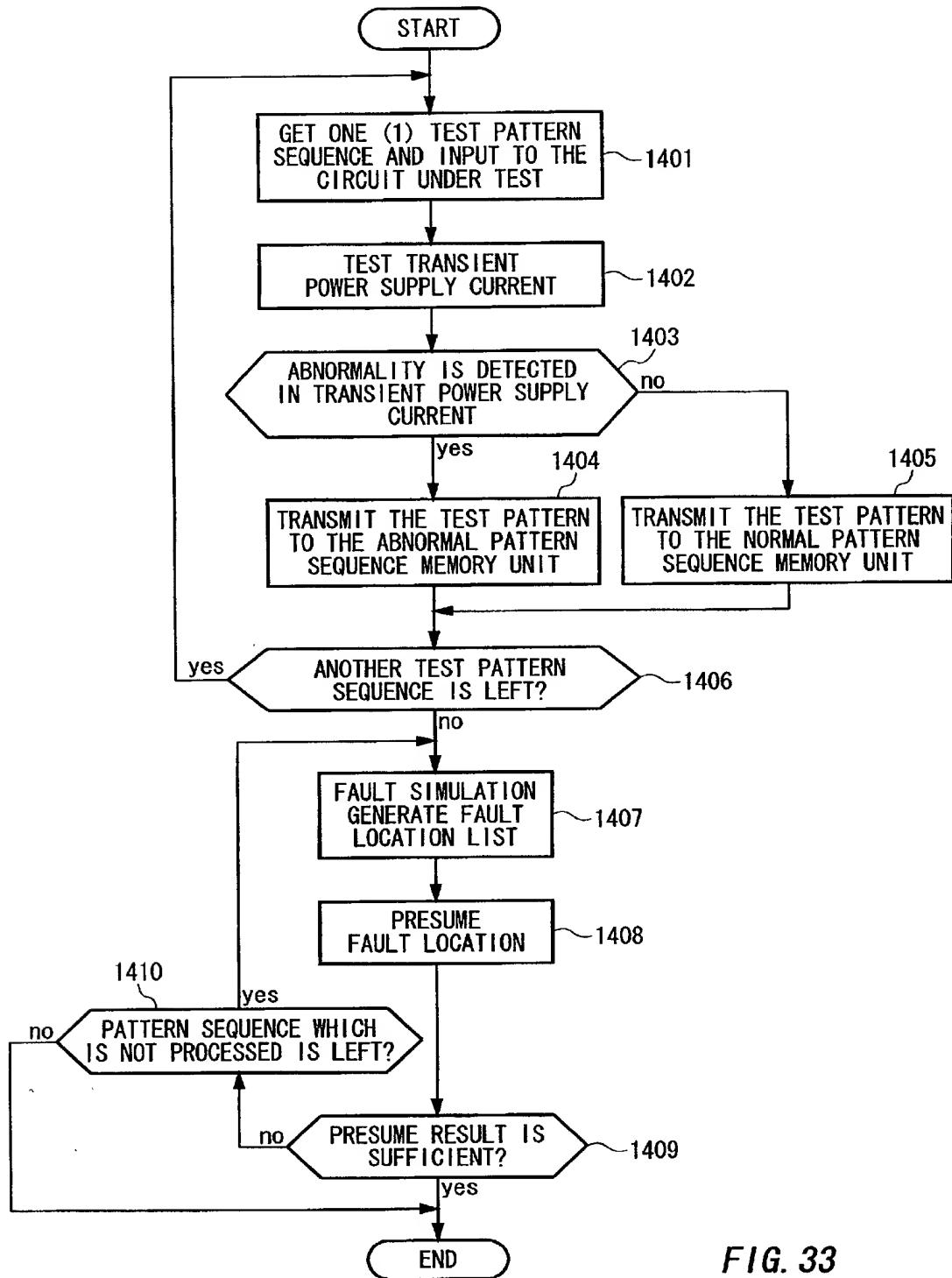


FIG. 33

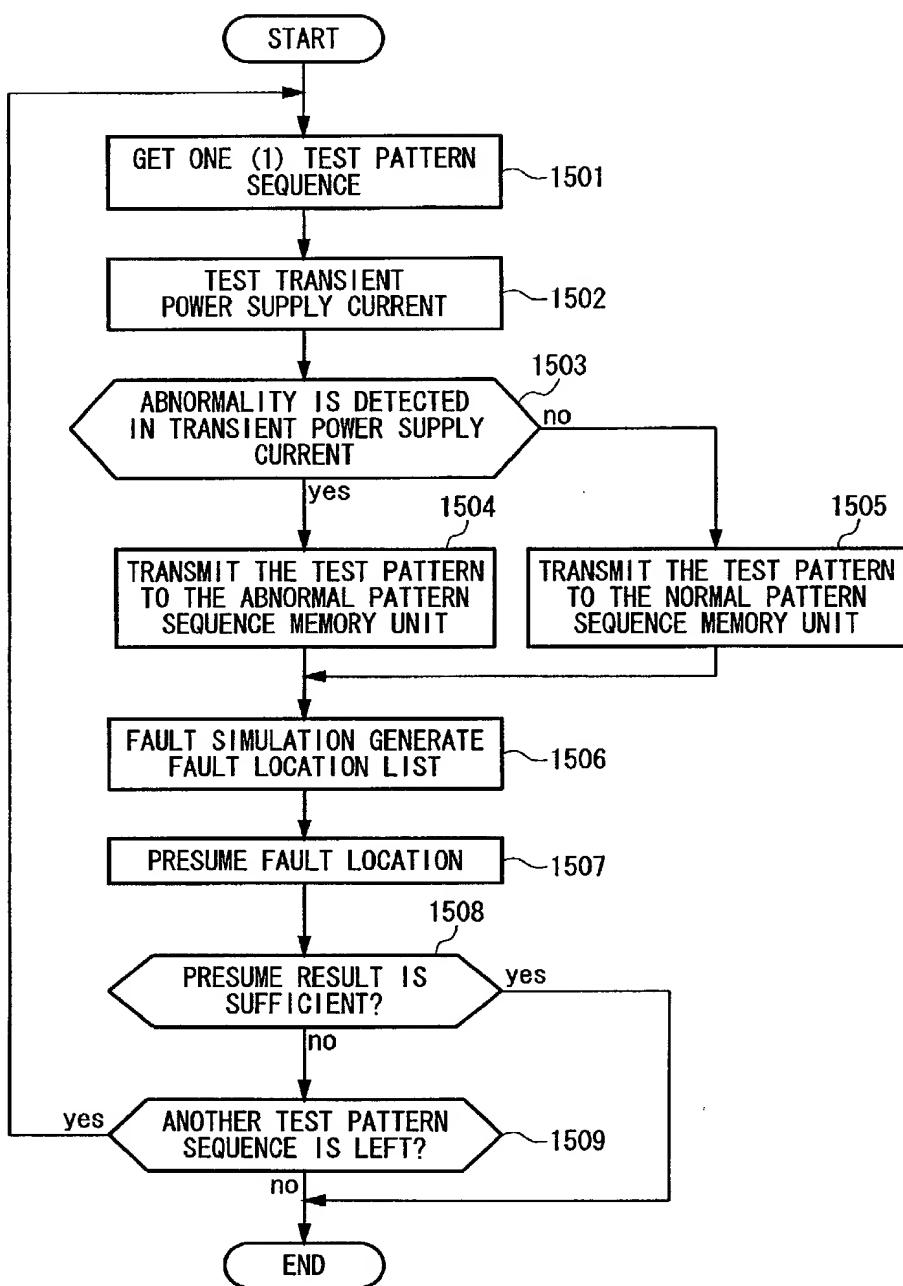


FIG. 34

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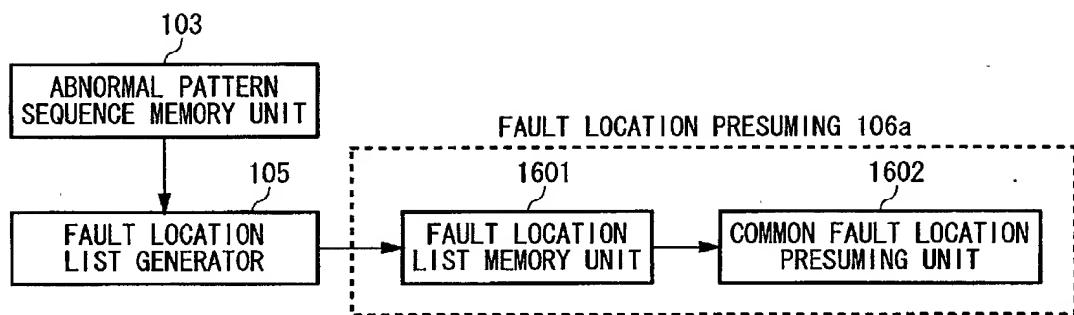


FIG. 35

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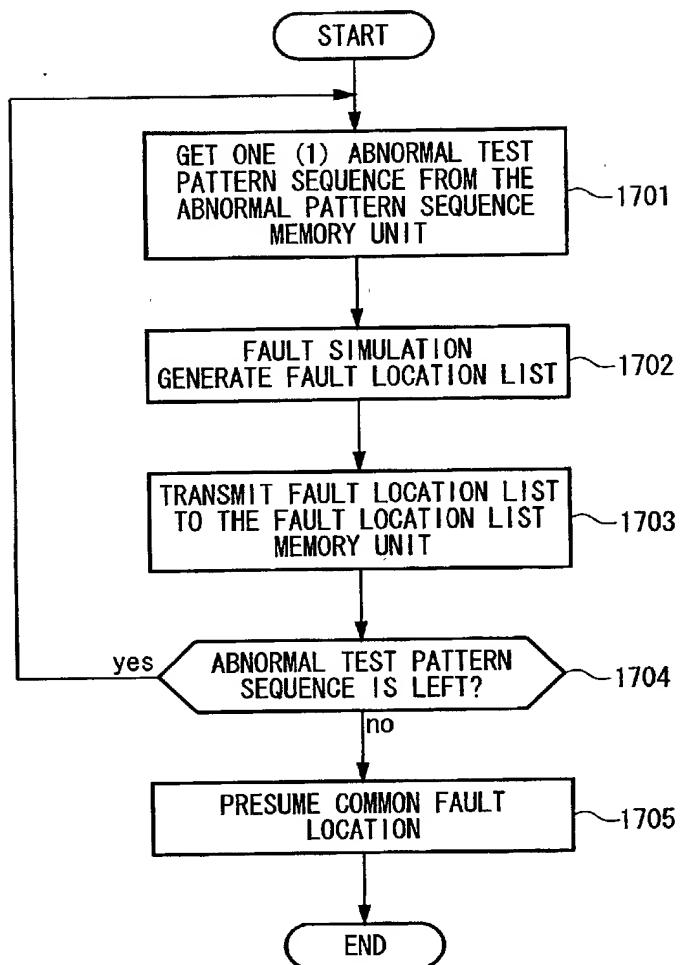


FIG. 36

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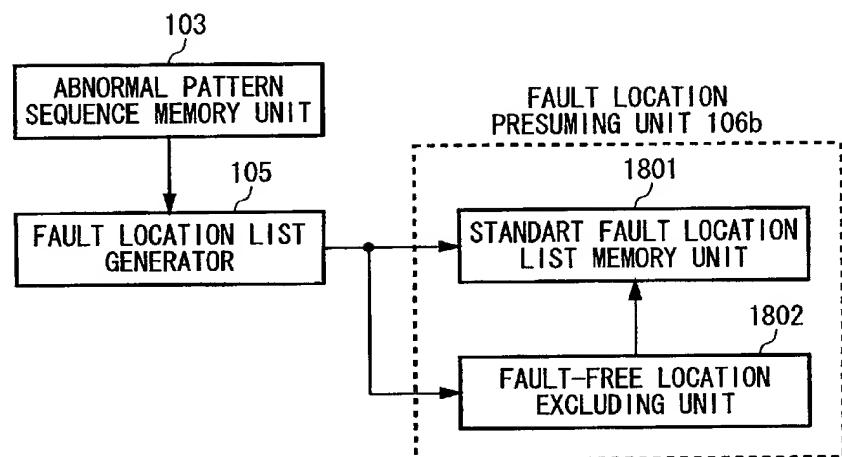


FIG. 37

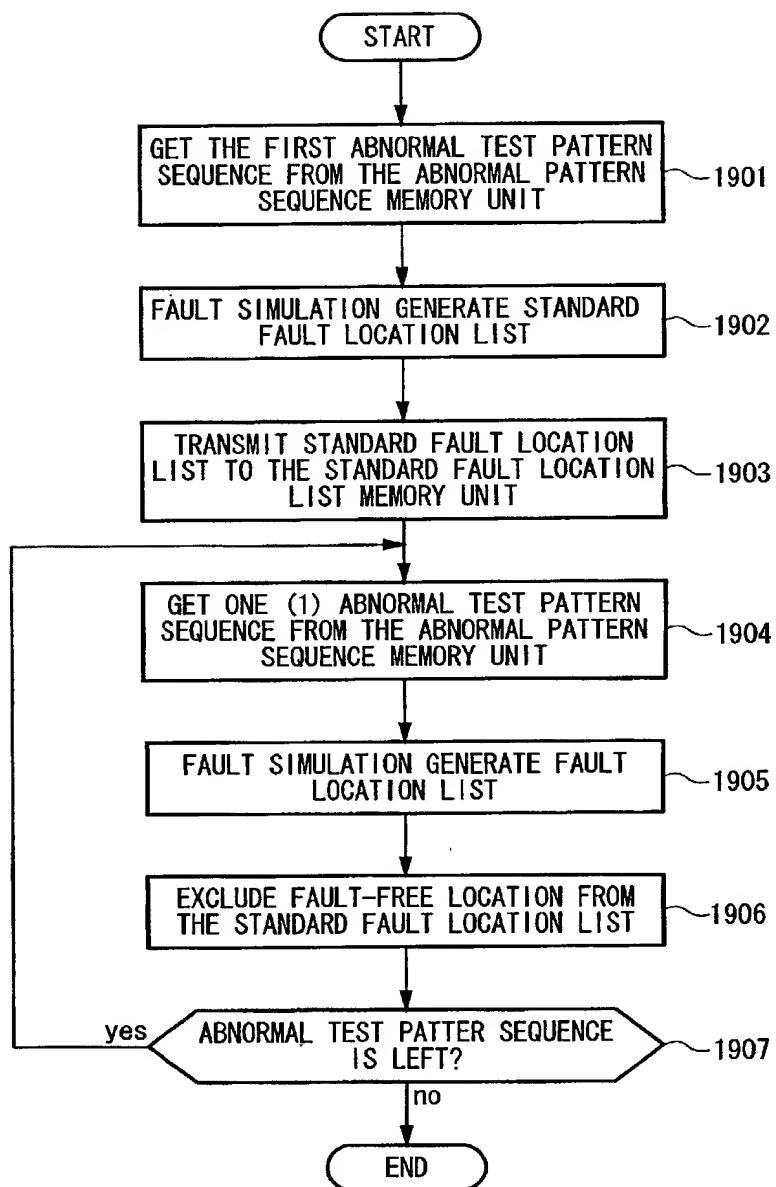
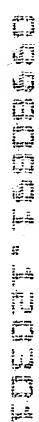


FIG. 38

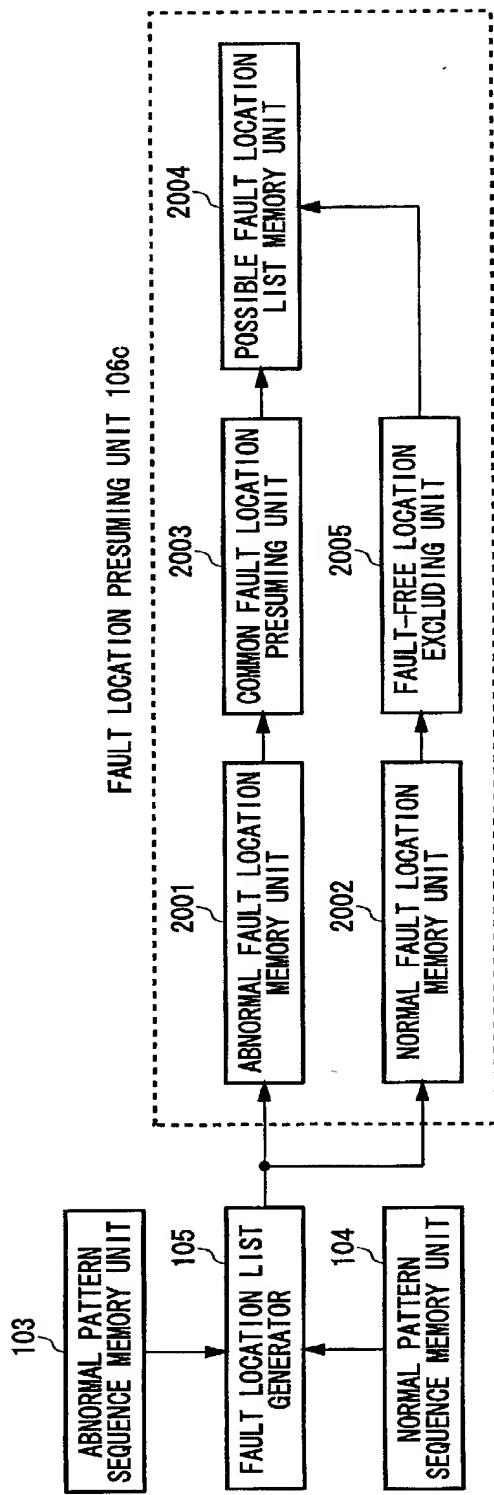


FIG. 39

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20000000000000000000000000000000

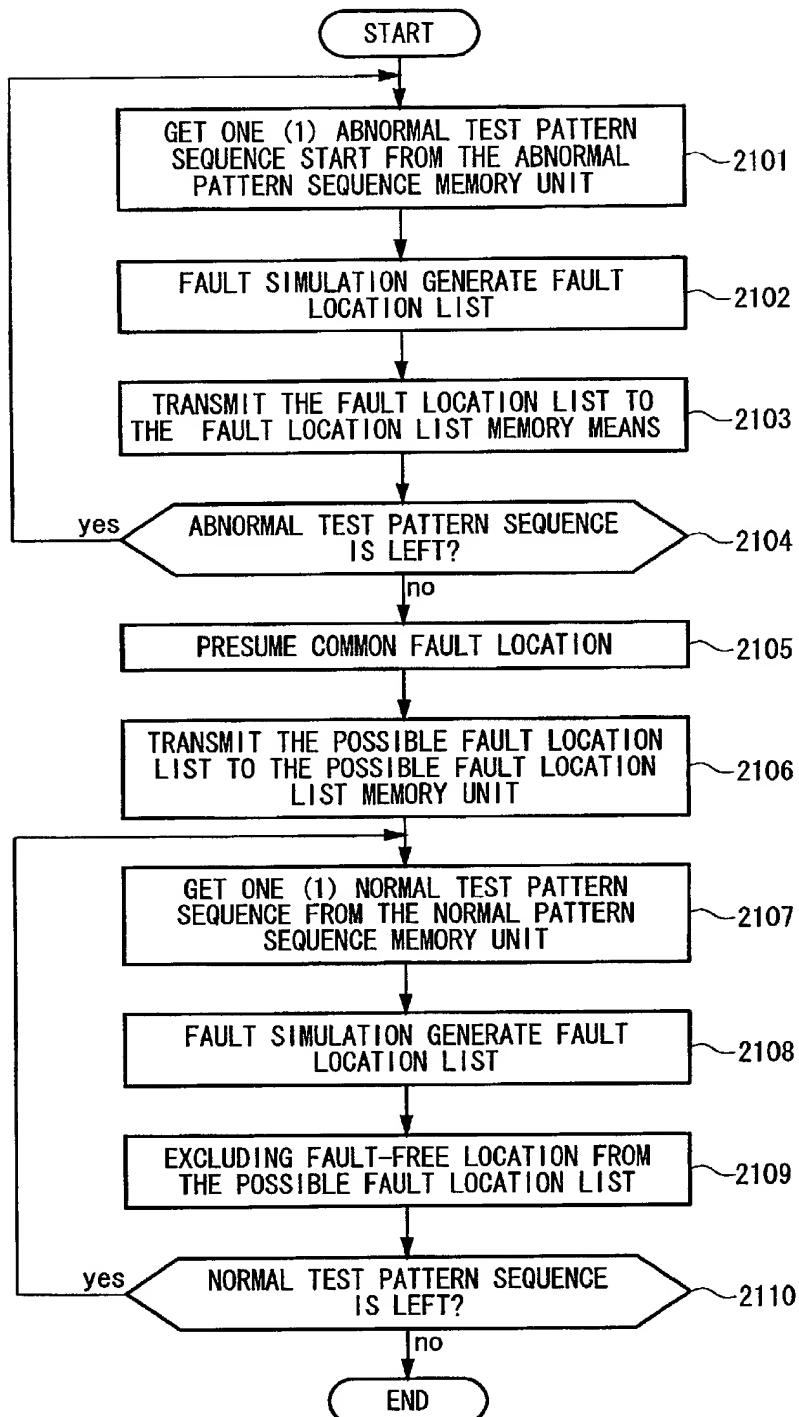


FIG. 40